

WHAT IS CLAIMED IS:

1. An xDSL modem transformer having a magnetic core, wherein the magnetic core comprises 22.0 to 34.5 mol % MnO, 12.0 to 25.0 mol % ZnO, and the remainder substantially Fe₂O₃.
2. The xDSL modem transformer according to claim 1, wherein the magnetic core comprises 23.0 to 33.0 mol % MnO, 13.0 to 24.0 mol % ZnO, and the remainder substantially Fe₂O₃.
3. The xDSL modem transformer according to claim 1, wherein the magnetic core comprises 23.8 to 24.2 mol % MnO, 23.0 to 23.4 mol % ZnO, and 52.6 to 53.0 mol % Fe₂O₃.
4. The xDSL modem transformer according to claim 1, wherein the magnetic core comprises 26.1 to 26.5 mol % MnO, 20.1 to 20.5 mol % ZnO, and 53.2 to 53.6 mol % Fe₂O₃.
5. The xDSL modem transformer according to claim 1, wherein the magnetic core comprises 23.0 to 23.4 mol % MnO, 23.4 to 23.8 mol % ZnO, and 53.0 to 53.4 mol % Fe₂O₃.
6. The xDSL modem transformer according to claim 1, wherein the transformer has a total harmonic distortion of not more than -80 dB at 5kHz.
7. An xDSL modem transformer having a magnetic core, wherein the magnetic core comprises
 - a bottom plate,
 - a columnar center leg rising from an approximate center of the bottom plate in a first direction, and
 - an outer leg rising from the bottom plate surrounding at least two sides of the center leg in the first direction separated by a predetermined space,

wherein, a height of the center leg is lower than a height of the outer leg by exactly a predetermined gap and a through gap of substantially the same height as the height of the center leg is formed at part of the top of the outer leg.

8. The xDSL modem transformer according to claim 7, wherein the magnetic core further comprises 22.0 to 34.5 mol % MnO, 12.0 to 25.0 mol % ZnO, and the remainder substantially Fe₂O₃.